Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the

application:

Listing of the Claims

1. (original) In a transmission system comprising a plurality of transmission channels wherein at least one of said plurality of channels carries a data signal thereover, a channel search method for finding a data channel available for use by a terminal located at a downstream end of said plurality of transmission channels, said method comprising the steps of:

sequentially scanning at least two selected subsets of said plurality of channels for a channel having a data signal transmitted at a predetermined modulation protocol; and

if the data channel scanned for in the preceding step is not found, further sequentially scanning at least one, but less than all, of the selected subsets of the plurality of channels for a channel having a data signal transmitted at other than said predetermined modulation protocol.

2. (original) The channel search method of claim 1 including the further step of:

sequentially scanning all of said plurality of channels for a channel having a data signal transmitted at said predetermined modulation protocol.

3. (original) The channel search method of claim 1 wherein the first sequential scanning step is repeated at least once prior to beginning the step of scanning at least one of the selected subsets.

4. (original) The channel search method of claim 1 wherein the predetermined modulation protocol is either 64 QAM or 256 QAM, and wherein the modulation protocol other than said predetermined modulation protocol is 16 QAM.

5. (original) The channel search method of claim 1 wherein the predetermined modulation protocol is either 64 QAM or 256 QAM, and wherein the modulation protocol other than said predetermined modulation protocol is 4 QAM.

6. (original) The channel search method of claim 1 wherein data transmitted via said data channel available for use by said terminal is in accordance with the DOCSIS standard.

7. (original) The channel search method of claim 1 wherein data transmitted via said data channel available for use by said terminal is in accordance with the Euro-DOCSIS standard.

8. (original) A bi-directional communication device, operative to receive a data signal transmitted over at least one transmission channel selected from a plurality of transmission channels, comprising:

receiving and channel-search means operative to sequentially scan at least two selected subsets of said plurality of transmission channels for a channel having a data signal transmitted at a predetermined modulation protocol; and

the receiving and channel-search means being further operative, upon not finding the data channel during the sequential scan, to scan at least one, but less than all, of the selected subsets of the plurality of channels for a channel having a data signal transmitted at other than said predetermined modulation protocol.

9. (original) The bi-directional communication device of claim 8 wherein the receiving and channel-search means is still further operative to scan all of the plurality of channels for a channel having a data signal transmitted at said predetermined modulation protocol.

10. (original) The bi-directional communication device of claim 8 wherein the receiving and channel-search means further operates to repeat the first sequential scan at least once prior to beginning the scan of the at least one of the selected subsets.

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11. (original) The bi-directional communication device of claim 8 wherein the predetermined modulation protocol is either 64 QAM or 256 QAM, and wherein the modulation protocol other than the predetermined modulation protocol is 16 QAM.

12. (original) The bi-directional communication device of claim 8 wherein the predetermined modulation protocol is either 64 QAM or 256 QAM, and wherein the modulation protocol other than the predetermined modulation protocol is 4 QAM.

13. (original) The bi-directional communication device of claim 8 wherein data transmitted via said at least one transmission channel is in accordance with the DOCSIS standard.

14. (original) The bi-directional communication device of claim 8 wherein data transmitted via said at least one transmission channel is in accordance with the Euro-DOCSIS standard.

15. (original) The bi-directional communication device of claim 8 wherein the bi-directional communication device is a modem.

16. (original) The bi-directional communication device of claim 15 wherein the modem is a cable modem.

17. (original) In a transmission system comprising a plurality of channels, wherein information is transmitted via one or more data transmission channels among the plurality of channels by a modulation arrangement in which information bits are encoded by symbols selected from a known symbol constellation, and further wherein the symbol constellation used for encoding the information bits is selected from a set of symbol constellations established in accordance with a known standard, a channel search method for application at a receiving end of the data transmission channel comprising the steps of:
         sequentially scanning at least two selected subsets of said plurality of channels for a channel having a data signal modulated thereon in accordance with symbols from one of said

symbol constellations established in accordance with said known standard (the "data channel");

upon not finding the data channel in the sequential scanning step, scanning at least one, but less than all, of the selected subsets of the plurality of channels for a channel having a data signal modulated thereon in accordance with symbols from a symbol constellation other than one of said symbol constellations established in accordance with said known standard (the "non-standard data channel"); and

upon not finding the data channel in the sequential scanning step or the non-standard data channel in the step of scanning at least one of the selected subsets, scanning all of said plurality of channels for a channel having a data signal modulated thereon in accordance with symbols from one of said symbol constellations established in accordance with said known standard.

18. (currently amended) The channel-search method of claim ~~16~~ 17 wherein the symbol constellations established in accordance with the known standard comprise 64 QAM and 256 QAM, and wherein the symbol constellation other than the standard-compliant format is 16 QAM.

19. (original) The channel-search method of claim 18 wherein the symbol constellations established in accordance with the known standard comprise 64 QAM and 256 QAM, and wherein the symbol constellation other than the standard-compliant format is 4 QAM.